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ABSTRACT

The "Leadership Continuum" model developed in 1961 by R. Tannenbaum, I. Weschler, and F. Massarik clearly illustrates the ideas that management scholars like Frederick Taylor, V. A. Graicunas, James Worthy, Rensis Likert, and Frederick Thayer have posited concerning span of control and organizational structure. Each of these scholars fits at some point on the "leadership continuum" scale. The model (the underlying assumption of which is that leadership is not always centered with the "boss") provides an important contrast between what scholars thought several years ago versus what they think now, and provides insight into how ideas about management have changed. The model successfully portrays how the authority of the manager has moved to a more subordinate-centered authority, delineating how those who hold the knowledge make the actual decisions. This shift can be seen as the first step toward an end to hierarchy. Also, the natural progression of management theory was and is toward more personal leadership, where more employees have a greater impact on organizational decisions and outcomes. (One figure containing the "Leadership Continuum" model, and 16 notes are included.) (KEH)

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Taylor, Graicunas, Worthy, Likert, and Thayer:

Span of Control
and
Organizational Structure--where they fit
on the
"Leadership Continuum"

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There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.

Niccolo Machiavelli [1469-1527], The Prince.

What do Mike Dukakis, Jesse Jackson, and George Bush have in common with Frederick Taylor, V. A. Graicunas, James Worthy, Rensis Likert, and Frederick Thayer? Some might say nothing. I, however believe that each are or were concerned with "leadership." Pick any of the recent Presidential candidates--any of them--and you will hear the familiar battle cry. "I am not about this policy or that policy, I am about leadership. Leadership that demonstrates a strong interest in the people of this nation. We need government that will help, not harass the people of the United States." Indeed, the candidates seem to have "tapped in" to what Richard Weaver has labeled "Ultimate Terms."¹ "Leadership" ranks along with other terms, such as "democracy," "freedom," "fact," and "progress." These terms, so the theory goes, have certain "potencies" and are not part of what the ancient Greeks called

¹Weaver, Richard. M. *The Ethics of Rhetoric*. Hermagoras Press, Davis, CA, 1985. See, especially, Chapter 9, "Ultimate Terms in Contemporary Rhetoric."

"logos."² In short, the candidates (with the help of their political consultants) have realized that using the term "leadership" may help define them in a positive light and win votes.

Management scholars, in a different way, are also concerned with leadership. Since the time of Taylor, scholars have been interested in formulating many leadership or management concepts, one of which is the idea of how many people one person can effectively lead. Otherwise known as "span of control," scholars have typically suggested "spans of control between three and nine subordinates in most environments, four being considered most desirable. At lower levels of routinized work, spans of control can expand, so it is thought, to about thirty."³

Why is span of control important? Because, ultimately, managers are supposed to be responsible for making the important decisions and running the organization, no matter what that organization's end goal(s). It seems to me that beliefs about the proper span of control lead directly to beliefs about the proper organizational structure. Should there be one boss with five subordinates? Should this boss make decisions and announce these

²Logos had two different meanings for the ancient Greeks. First, it was one part of what Aristotle believed made up persuasive appeals: ethos (personal credibility), pathos (emotional or psychological arguments or appeals), and logos (logical credibility or logical reasoning). Weaver, however, uses the term to mean "the ability to give names." By giving something a name, the rhetorician, in a sense, shapes the listeners' perceptions of that thing. For example, we can call Soho a "slum," which brings about certain negative images. Or, we can call Soho a "re-development zone," which gives an entirely different image.

³Thayer, Frederick. An End to Hierarchy & Competition, Second Edition. Franklin Watts, New York, N.Y., 1981, p. 7-8.

decisions to subordinates? Is this the best way to run a company? Or, as Thayer suggests, do organizations run "in spite" of hierarchical relationships like these? I am convinced that each management scholar has different assumptions about leadership, span of control, and organizational structure. Although not every scholar explicitly discusses any of these three variables, inferences can be made based on their writings. Further, it seems to me that, by using a "leadership continuum," one can more clearly see how these scholars differ in their beliefs about organizational structure and management control. In this essay, therefore, I will start with a simple model of leadership that describes a "continuum of leadership behavior." This model will be used as a basis for comparing the work of each scholar to the next. I have chosen these scholars with a specific purpose in mind: each one comes from a slightly different "school of thought."⁴ Taylor comes from "scientific management," Graicunas from "administrative management theory," Worthy from "human relations," Likert from "human resources," and Thayer from "discovered rationality."⁵ I will suggest throughout that each scholar can be placed on the "leadership continuum," each scholar has something to say or imply about span of control, and each scholar has an idea of how, structurally, organizations should look.

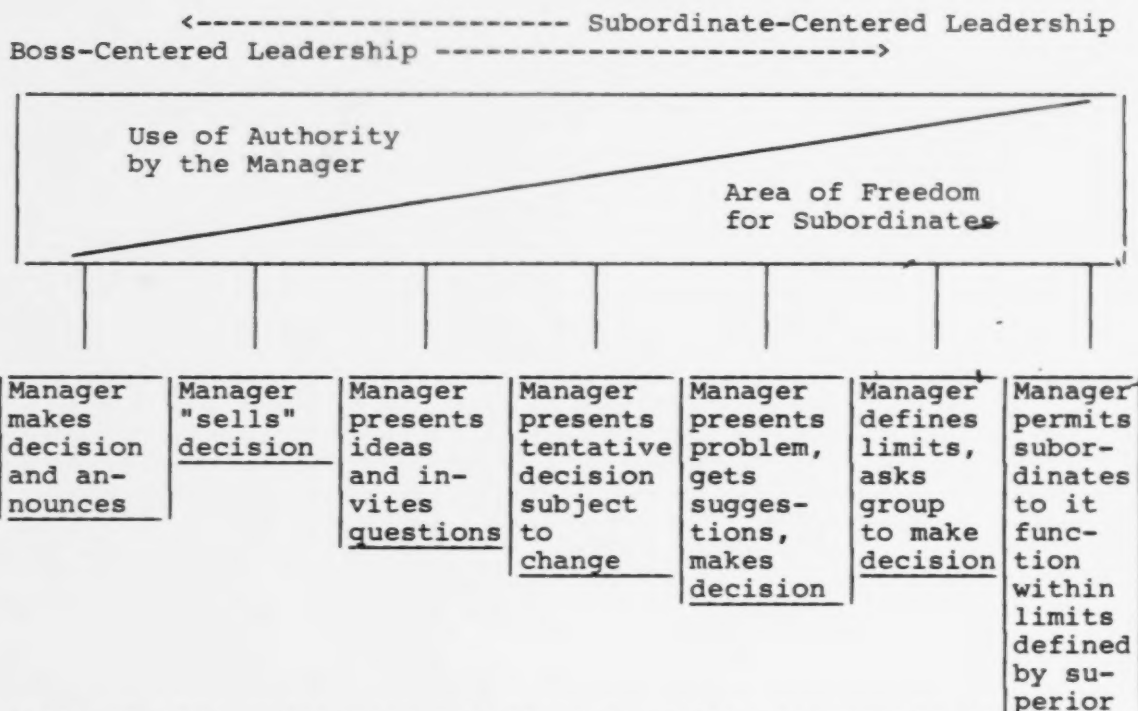
⁴Please note that not everyone will agree with my classification system. Although not all of these authors are central figures in their respective schools of thought, they hold similar beliefs and assumptions about human nature and appropriate leadership.

⁵Discovered Rationality is the term that Harmon and Mayer have chosen to describe the work of Frederick Thayer.

A Model of Leadership Behavior

For this essay, I have chosen a model of leadership that was developed by Tannenbaum, Weschler, and Massarik.⁶ This model (Figure 1) makes more sense than any I have seen to date, because it is both simple and comprehensive.

Figure 1: Continuum of Leadership Behavior



Although this model does not directly define leadership, it does illustrate who plays a part in the decision making process (i.e., sometimes the boss, sometimes the subordinate).

The underlying assumption of this model is that leadership is not always centered with the boss. In fact, different situations and contexts give rise for different individuals to become leaders. Essentially, the left hand side of the model is boss

⁶Tannenbaum, R., Weschler, I., and Massarik, F. Leadership and Organization. New York, N.Y., McGraw-Hill, 1961, p. 69.

centered leadership. Here, the boss makes the decisions and subordinates obey or they are terminated. On the far right hand side of the model, subordinates have much more freedom. On this side, the subordinates are able to play a large part in the decision making process and, in some respects, they are their own boss. With this general model in mind, I shall examine the ideas of each of the management scholars and suggest that as we move from Taylor through Thayer we move from a more boss-centered leadership to a more subordinate-centered leadership. Let us, therefore, begin with the oldest scholar, Taylor, and his theory of scientific management.

Frederick Taylor

In his classic book Shop Management, Frederick W. Taylor stated the following:

"The belief is almost universal among manufactures that for economy the number of brain-workers or of nonproducers, as they are called, should be kept as low as possible in proportion to the number of producers, i.e., those who actually work with their hands. An examination of the most successful establishments will, however, show that the reverse is true." ⁷

The Ratio of Nonproducers to Producers:

Taylor believed that productive companies had managers (nonproducers) that designed job structures, selected the right workers, and trained these workers to work more efficiently. Companies with less supervisors thought that the best way to get

⁷Taylor, F. W. Shop Management. 1911, p. 121.

more productivity was to hire more help. Taylor had observed that a worker's natural tendency was toward "soldiering"--wasting time by working slower. The workers feared that if they produced more, many of them would be out of work. Therefore, they purposefully slowed down, because they thought they could save their jobs. It is here that Taylor realized that fewer workers could do more work and, consequently, these workers could be paid better wages. He believed that a manager, who was trained in the field of science and measurement, could help these workers become more productive. In short, then, Taylor believed that nonproducers were an essential part of the production process--because these nonproducers had expert knowledge that the workers did not have. By working together, the workers and management could both make more money.

Taylor's Proposed Structure for Management and Control:

Taylor's proposed structure for management and control is in several parts. It is necessary to provide background information before a conclusion about where Taylor fits on the leadership model can be made. Therefore, I shall first discuss his four major principles of scientific management as a management tool. Second, I shall discuss what his "organizational" chart might look like. And, finally, I shall discuss other, more subtle means of control in his management system.

Four Principles of Scientific Management:

To begin, Taylor believed that four elements must be implemented by management: scientific design of each task,

scientific selection of workers, adequate training and rewards for productivity, and division of both labor and responsibilities.⁸

Scientific Design of Each Task: With the help of workers, managers are to find the shortest and easiest way to perform each task. For example, at the Bethlehem Steel Company, Taylor conducted time-motion studies on shoveling. Traditionally, the workers had provided their own shovels, regardless of the task (e.g., shoveling coal, saw dust, and so on). Taylor found that maximum shoveling efficiency was at a shovel load of 21 pounds. Therefore, workers were issued smaller shovels for heavier objects (e.g., coal) and larger shovels for lighter objects (e.g., saw dust). Also, workers were paid more (if they produced more) and given instructions on the best way to shovel. Of course, the results were substantial. The yard crews were reduced, workers were paid more, and the company saved money.

Scientific Selection of Workers: Here, managers were to select the most qualified worker for the task. By determining the necessary characteristics of the worker who needed to perform the job, they could hire based on the person that best matched the characteristics.

Adequate Training and Rewards for Productivity: Taylor believed that the chief form of motivation is through money. Therefore, by paying the workers more when they produced more, he thought that they would be motivated to work harder. However, he also believed that when the workers became more

⁸Taylor, F. W. Principles of Scientific Management. 1911.

productive that they did not need to have their "piece-rate" readjusted at a lower rate.

Division of Both Labor and Responsibilities: In Taylor's system, both managers and workers were responsible for production. Therefore, managers and workers share equally in the work, so the theory went.

Through these four principles⁴ then, we can begin to see Taylor's system of management. A manager is a person who helps the worker do the best they can (much like a teacher). The form of control in this part of his system is with motivating worker by paying them more money.

What Does Taylor's Organizational Chart Look Like?

Taylor's organizational chart contains several managers or brain workers that can help an individual worker. For example, a superintendent might oversee 1) an order and work route man, 2) an instructor card man, 3) a time and cost clerk, and 4) a disciplinarian. These individuals would be primarily responsible for planning. Another set of individuals, who are still underneath the superintendent are the performing brain workers: 1) gang boss, 2) speed boss, 3) repair boss, and 4) inspector. These nine brain workers are each over an individual worker. This means that an individual worker might first report to the order and work route man to see where he would be working for the day. Another brain worker (the speed boss) might check to make sure that the individual worker is keeping up with the scientifically derived time standards. Therefore, each individual worker, at any given point, might have several bosses, rather than just one.

Other, More Subtle Means of Control:

There are many other means of control in Taylor's system of management that have not been mentioned yet. For example, one method of control is through the color of card each worker received for the previous days work. Each color meant something different (e.g., worker produced in the bonus range, worker was inadequate, etc.). Workers, therefore, may have wanted to get the bonus range card (and, probably, show that to their friends as well).

Where does Taylor's Manager Fit on Continuum of Leadership Behavior?

Although Taylor has received tremendously bad press, I am convinced from reading his original works that his intentions were better than we have been led to believe. He functioned in a time where the assembly line was the predominate^{nt} mode of production. Therefore, efficiency was the key to survival and higher profits. Besides, it seems clear that his theory never really worked like he thought it should. For example, a quick reading of Robert Hoxie's report shows that within a few years after Taylor's programs were implemented managers had abused his system (e.g., performed time studies to increase output, but did not raise wages). After speaking to "one hundred and fifty scientific management leaders, systematizers, employers, managers, time study men, labor leaders, and other authorities,"⁹ Hoxie concluded that scientific management did not even have a uniform body of thought.

⁹Hoxie, R. F. Scientific Management and Labor. 1920, p. 4.

These comments in mind, where does Taylor fit? It seems to me that all the evidence suggest that managers (regardless of the type) have the knowledge and know-how to tell workers what to do. Evidence can quickly be seen by his remarks made about "Schmidt" and his lack of intelligence.¹⁰ Therefore, I would say that Taylor's manager is on the "far left" of the continuum. His manager "makes the decision and announces it"--even if it is hidden under the guise of science. With this said about Taylor, what about Graicunas and the "administrative management theorists?"

V. A. Graicunas

Later in Shop Management, Taylor goes on to note that in the successful firms, there is about one nonproducer to between six and seven producers, even though each producer (worker) may report to several nonproducers (bosses). If we make the assumption that this represents the span of control for supervisors (i.e., nonproducers), how would V. A. Graicunas evaluate Taylor's statements? What would be the basis for his argument?

V. A. Graicunas on Taylor's Statements:

Graicunas, after reading the work of Urwick, was convinced that "no supervisor can supervise directly the work of more than five or at the most six subordinates whose work interlocks."¹¹ The basis of his argument was arrived at through a mathematical

¹⁰An interesting re-analysis of Taylor's study contradicts his original assertions. See Wrege, C. D. and Perroni, A. G. "Taylor's Pig-Tale: A Historical Analysis of Frederick W. Taylor's Pig-Iron Experiments," Academy of Management Journal. March, 1974, pp. 6-27.

¹¹Graicunas, Vytautas A. "Relationship in Organization," The Bulletin of the International Management Institute. March, 1933.

formula that suggests that not only individuals but also the relationships between individuals must be managed. The more individuals you supervise the more combinations of relationships you must supervise. You may increase your staff by only one (arithmetically) yet the number of relationships increases geometrically. Therefore, there are limits on how many people can be managed--there is a span of control, which includes five or six individuals.

Looking strictly at the numbers, it seems that Taylor (with 6 or 7 subordinates per manager) and Graicunas (with 5 or 6 subordinates per manager) are in agreement. Graicunas would, therefore, probably agree with Taylor that fewer subordinates are much easier to manage than a larger number. However, Graicunas was talking about 5 or 6 workers that had only one boss. Taylor's workers really had several bosses (perhaps 9 depending on the organization). Therefore, in my mind, although these two notions of span of control appear to be similar, they are not. If we used Graicunas' mathematical method and calculated the number of relationships in a single work group (e.g., five workers) and nine bosses, we can quickly see substantially more relationships exist. Therefore, comparing Taylor to Graicunas is like comparing a broom cleaner to a vacuum cleaner. These objects may appear to have the same function, but one pushes the dirt side ways and the other sucks.

Where does Graicunas fit on the Leadership Continuum?

Before a decision can be reached about where to place Graicunas on a leadership continuum, it seems important to suggest

some other ideas that stem from the administrative management theorists. Above, I have illustrated that an important assumption of this school of thought is that coordination and control of a limited number of employees is important. In addition to this assumption, Massie¹² and March and Simon¹³ suggest some additional beliefs of the administrative theorists.

1. Humans can generally be assumed to act rationally in a defined job situation.
2. Efficiency is measured in terms of productivity and productivity will be a function of the effectiveness of the organization structure and coordination.
3. People need guidance from superiors in their cooperative efforts to define work and work out their relationships to work.
4. Clear definitions of responsibility and job task are necessary to eliminate confusion and duplication by employees.
5. People prefer the security of a definite task rather than freedom in organizing themselves for effective performance.
6. Management deals essentially with individuals--not groups.
7. Workers are basically motivated by economic and security needs. Incentives will be monetary and good job formulation.

¹²Massie, J. L. "Management Theory," in J. March (ed.) Handbook of Organizations. 1965.

¹³March, J. and Simon, H. Organizations. 1958.

8. Close supervision and tightly designed functional systems are necessary to focus employee efforts and maintain a high level of efficiency.
9. People willingly accept authority from the top and have little expectation of influencing decisions.
10. People will not coordinate themselves and their efforts toward achieving organizational goals. They must be planned and directed from above.

Given this list, it seems that Graicunas is similar to Taylor in that he believes that the boss has the knowledge and can make the decisions. The difference, I see at least, is that Taylor gets the knowledge through scientific testing, while knowledge of the administrative theorists comes through practice. Therefore, Graicunas should be placed on the far left of the continuum. In short, the boss has the authority, makes the decisions, and hands these decision down to subordinates.

James Worthy

Now that I have examined the ideas of Graicunas and other administrative theorists, it seems natural to turn to one author who I believe falls within the human relations school of thought.

Worthy and Span of Control:

Worthy, although he never gives an exact number of subordinates per manager, believes that flat organizations (that allow for a minimum of job specialization) are best.¹⁴ In a tall organization, the supervisor must provide constant control and

¹⁴Worthy, James C. "Organizational Structure and Employee [sic] Morale," American Sociological Review. April, 1950, Vol. 15, No. 2, pp. 169-179.

direction for his or her employees. This means that the employee has little chance to develop initiative and self-reliance. He is convinced that organizations with few layers of supervision and a minimum of formal controls provide the best environment for a supervisor to stimulate and lead employees, because employees are forced to participate and find solutions to their problems.

The basis of Worthy's argument comes from what he observed at the time (deterioration of management-employee relations) and from examining over 100,000 interviews with employees from Sears. Current management thought, at his time, tried to solve this problem by either increasing the size of the administrative unit or developing a more complicated organizational structure. Both of these solutions seemed to make the organization more efficient, however, employees soon viewed their jobs as boring and lost interest in cooperating with supervisors. Worthy's solution was to create flatter, less complex structures, with a maximum of administrative decentralization, that would tend to create a potential for improved attitudes, more effective supervision, and greater individual responsibility and initiative among employees.

Where does Worthy fit on the Leadership Continuum?

The difference between Worthy and Taylor or the administrative theorists is that Worthy seemed to believe that employees needed to be responsible for their own problem solving. In other words, employees were expected to know something--to have knowledge. It is at this point, I think, that we can clearly see a break between the older scholars and Worthy. However, this change is not as drastic as the changes we have seen in the human

resources school of thought. Therefore, I would place Worthy somewhere in the middle of the management continuum. This type of management would range from the manager who "sells" the decision to the manager who presents a tentative decision that is subject to change. In short, the boss would be someone who is not as authoritative as the first management scholars described.

Rensis Likert

Now that I have suggested where Taylor, Graicunas, and Worthy would fit on the leadership continuum, I shall briefly examine the work of Rensis Likert.¹⁵ Likert's linking pin theory is closely associated with the idea of span of control. He believed that people worked best when they belong to groups. Essentially, an organization is made up of several overlapping groups. Managers are links between two groups: the one they manage and the one in which they report. For example, the president of a company can meet with vice presidents (individually or in a group) to solve problems. The vice presidents can meet with their department heads (individually or in a group) to solve their problems, and so the scenario goes.¹⁶ The person that serves in two groups is known as the linking pin. This person is able to communicate decisions and company policy to the groups. But the groups also play a role in the decision making process, because they are able to express their concerns, which are then expressed to the next

¹⁵Likert, Rensis. New Patterns of Management. McGraw Hill Book Co., Inc. 1961.

¹⁶Just for an irrelevant comment, the phrase "and on and on the scenario goes" is one of Jimmy Swaggart's favorite.

level of management. Therefore, every group in the organization plays a part in the decision making process.

It seems to me that Likert's idea of span of control is within the structure of an organization that allows messages to go more than one direction. Graicunas and Taylor's systems seem to be "downward." In Graicunas' case, one manager does the controlling, mainly by limiting the number of people who report to him. This manager gives orders to five or six people. Likert, on the other hand, believed that groups serve as the controlling factor. People are able to input their ideas and feelings in each group meeting. The manager, then, would have an opportunity to participate in a higher level decision. The manager, in other words, influences what goes on one level above him. Therefore, the span of control is tied of with group process.

Where does Likert fit on the Leadership Continuum?

Given Likert's theory, it seems to me that he fits best at some point on the right of the scale, but not to the far right. In other words, because groups have an impact on decisions, the manger must either 1) present a problem, get suggestions, and make the decision or 2) define some kind of limits (e.g., cost, people hours, etc.) and ask the group to make the decision. Even though some policies may come from the top down, which means employees wont every have complete freedom to make decisions, the employees are still capable of influencing future decisions. Therefore, Likert's system seem radically different from Taylor's or Graicunas'.

Frederick Thayer

It seems inappropriate to describe Thayer's theory in detail in this essay for reasons that do not need explained. Rather, it seems best to simply suggest where Thayer fits on the leadership continuum.

Where does Thayer fit on the Leadership Continuum?

Since I have been moving left to right throughout this essay, it seems fitting that I should end on the far right of the continuum. In other words, Thayer seems to be suggesting that the best (or necessary) boss is the one that really does not have any power. Decisions are made through a "structured nonhierarchy," in which no decision is made by any individual. Rather, decisions are reached based on group consensus. In the terminology of the leadership continuum model, the manager "permits subordinates to function within limits defined by a superior(s)." Who is this superior? I am not sure that I have an answer, but perhaps we can stretch the model to accommodate Thayer's work. In this way, the superior is not a person. The superior is a grand theory, paradigm, or way of life. This theory would guide the decision making process, mandating that decisions be made through consensus. In addition, the theory argues that subordinates have maximum freedom to make decisions that influence their work lives. Therefore, it seems that Thayer's organizational structure and span of control are radically different than any of the other management scholars.

Summary and Conclusions

In this essay, I have attempted to show that by using a simple "leadership continuum" model that management scholars (such as Taylor, Graicunas, Worthy, Likert, and Thayer) and their ideas (of span of control and organizational structure) can be illustrated. The model, I think, provides an important contrast between what scholars thought several years ago versus what they think now. I am aware that my analysis is a simplification of sorts, but so is any model or explanation of phenomena. What is important to remember is that by using the ideas of span of control and organizational structure, we can see how ideas about management have changed. We can, in other words, see how the authority of the manager has moved to a more subordinate-centered authority. This shift is really a shift of knowledge--or a more accurate portrayal of who holds the knowledge to make decisions. This shift is really the first step toward an end to hierarchy. By using the model, it seems that the natural progression of management theory was and is toward more personal leadership, where more employees have a greater impact on organizational decisions and outcomes. In addition, the model shows that leadership means something different to each scholar. However, don't be fooled into thinking that any of the presidential candidates believe that their use of the term "leadership" really doesn't mean leadership.